

IARICHEV. Pavel Afanas'eyvich; LEPESHKINA, N.I., redaktor; MAKHOVA, N.N., ekhnicheskiy redaktor

[A collection of problems in algebra] Sbornik zadach po algebre.

[A collection of problems in algebra] Sbornik zadach po algebre.

[Noskva, Gos. uchebno-pedagog.izd-vo M-va prosv. RSFSR, Pt.2.

[For grades eight to ten of secondary schools] Blis 8-10 klassov

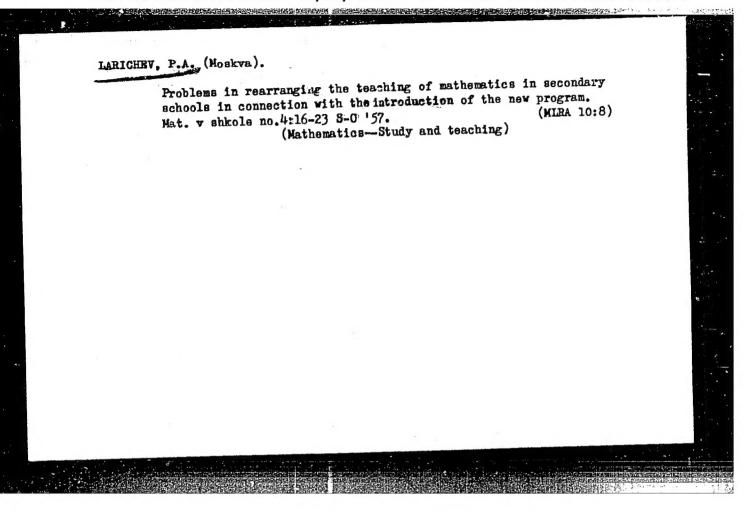
[For grades eight to ten of secondary schools] Blis 8-10 klassov

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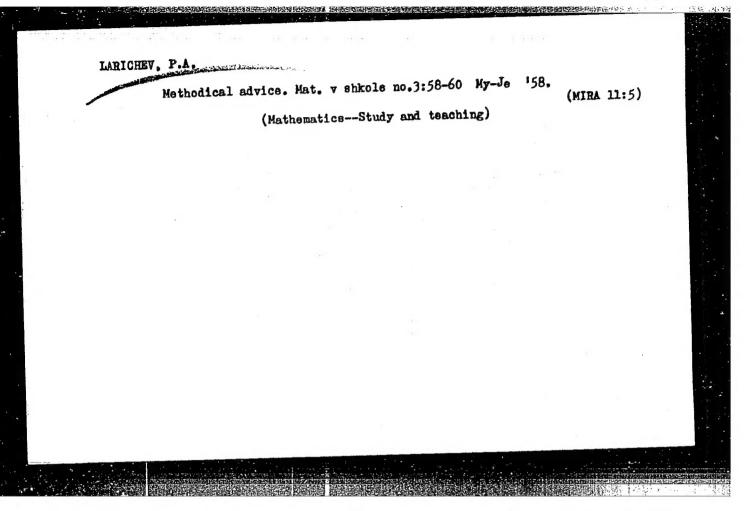
[A collection of problems in algebra] Sbornik zadach po algebra.



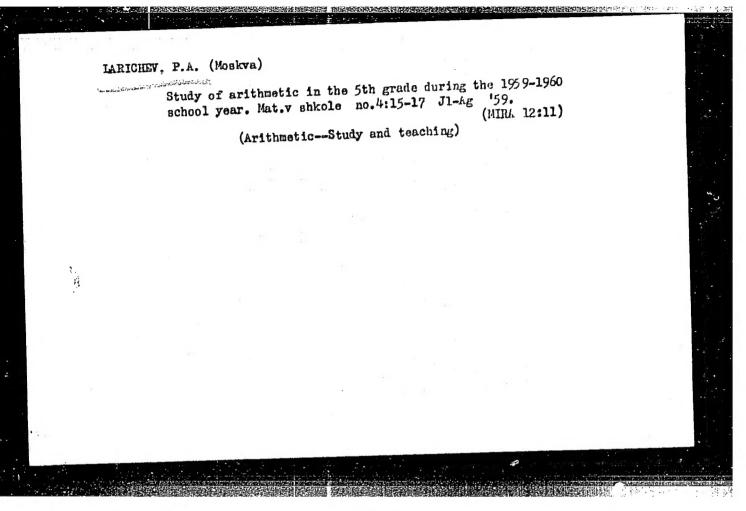
LARICHEV. Pavel Afanas yevich; LEPESHKINA, N.I., red.; MAKHOVA, N.N., tekhn.red.

[Handbook on problems in algebra; for classes 8 to 10 of secondary schools] Shornik zadach po algebre; dlia 8-10 klassov srednei shkoly. Izd. 9-e. Moskve, Gos. uchebno-pedagog. izd-vo M-va shkoly. Izd. 9-e. Moskve, Gos. uchebno-pedagog. izd-vo M-va prosv. REYER. Pt.2. 1958. 222 p.

(Algebra--Problems, exercises, etc.)



APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928630008-5"



S/124/60/000/006/035/039 A005/A001

Translation from: Referativnyy zhurnal, Mekhanika, 1960, No. 6, p. 170, # 8025

Larichev, P.Ya. AUTHOR:

The Calculation of Extracentrally Compressed Thin-Walled Rods on TITLE:

the Base of the Deformation State

V sb.: 17 Nauchn. konferentsiya professorsko-prepodavat. sostava Leningr. inzh. stroit. in-ta, Sekts. matem., soprotivleniya materi-PERIODICAL: alov, teor. mekhan., fiz., khimii, elektrotekhn., Leningrad, 1959,

pp. 79-82

A thin-walled rod of open cross section with two axes of symmetry is considered. It is compressed by forces applied to the ends with eccentricities. Two coordinate systems are used: 1) a stationary system, 2) a mobile trihedron, the edges of which are directed along the tangent of the deformed rod axis and along the main axes of the turned cross section. The expressions for the moments of the external forces with respect to the movable coordinate axes are set up for an arbitrary cross section: a) on the one hand, through the characteristics of the cross sections and the derivatives of deformations, whereat approximate

Card 1/2

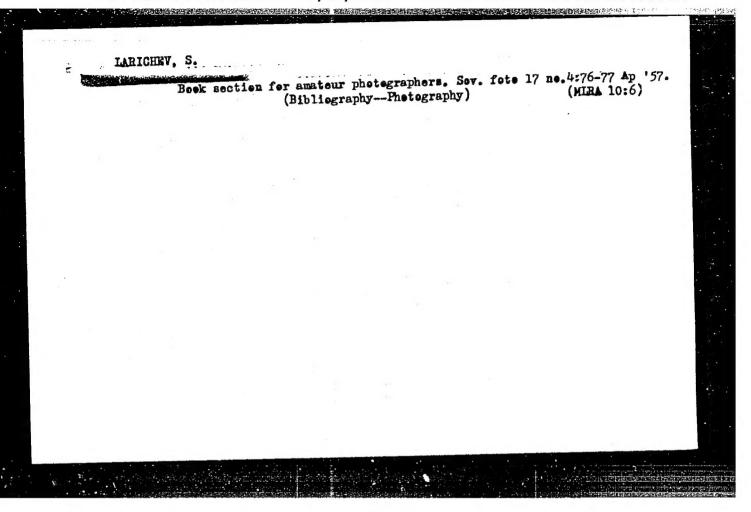
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The Calculation of Extracentrally Compressed on the Base of the Deformation State

formulae of the rod curvature are used, b) on the other hand through the moments and the longitudinal force at the rod ends. By equating the right-hand sides of the equations, a system of three nonlinear differential equations of equilibrium is obtained. It is assumed that the deflections vary according to a sinusoid. The equation system is reduced to one equation of seventh order with respect to one of the deflections. The general and particular solutions are found. The values of the four arbitrary constants in the particular solution are determined from the boundary conditions. Having found the solution for one of the deflections, the expressions for an other deflection and for the torsion angle can be derived, and having found these, the stresses at an arbitrary point of the rod can be found. It is necessary to point out that the problem studied in the article is a special case of the problem considered by S.P. Vyaz'menskiy, (Sb. nauchn. tr. Leningr. inzh.-stroit. in-t, 1957, No. 26, pp. 270-313 - RZhMekh, 1958, No. 11, # 13244) and L.N. Vorob'yev (Tr. Novocherk. politekhn. in-ta, 1958, Vol. 69/83, pp. 3-48 - RZhMekh, 1960, No. 1, # 1232. G.M. Chuvikin

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2



LARICHEY, V.A.	DECEASEI c 1961	1961/2
	SEE IIC	
ENGINEERING		

WIKITIN, Sergey Mikhaylovich; Laricher, V.I., red.; VINOGRADOVA, V.A., tekhn. red.

[Indices of industrial production in capitalist countries] Indeksy promyshlemnoi produktsii v kapitalistichskikh stranakh. Moskva, Gos. stat. izd-vo, 1958. 105 p. (MIRA 11:9)

(Industrial statistics)

ISKRA, Viktor Maksimovich; LARICHEV, V.I., red.; SHADRINA, N.D., tekhn.red.

[Automation--abundance or new calamities?] Avtomatizatsiis - izo-bilie ili novye bedstviis? Moskva, Izd-vo VTsSPS Profizdat, 1959.

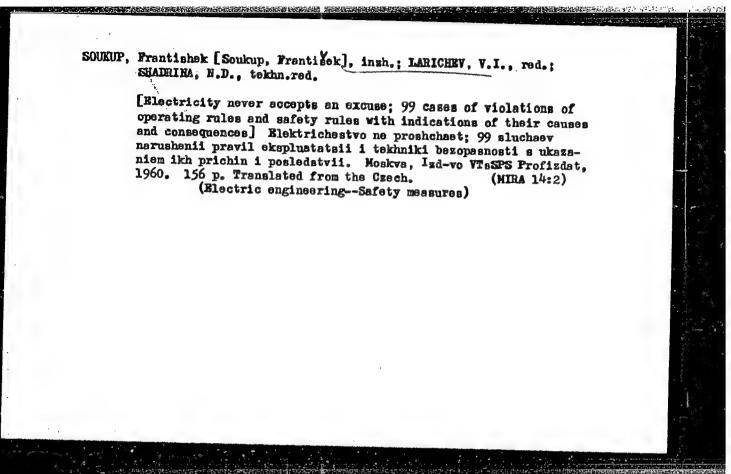
117 p. (Automation)

(MIRA 13:7)

MISHA, Kristat' [Misja, Kristat]; LARICHEV, V.I., red.; RAKOV, S.I., tekhn.red.

[History of the trade-union movement in Albania] Istoriae profesciusnogo dvizheniia v Albanii. Moskva, Izd-vo VTsSPS, Profisdat, 1960. 94 p. (MIRA 13:8)

1. Sekretar' TSentral'nogo Soveta profsoyuzov Albanii (for Misha).
(Albania-Trade unions)



LARICHEV, V. N.

LARICHEV, V. N. -- "The Investigation of the Electric and Photoelectric Properties of Transistors of the PbS Group." Leningrad Physicotechnical Inst of the Acad Sci USSR, Leningrad, 1956. (Dissertation for the Degree of Candidate in PHYSICOMATHEMATICAL SCIENCES).

SO: KNIZHNAYA LETOPIS' (Book Register), No. 42, October 1956, Moscow.

SOV/121-58-8-10/29

AUTHORS: Larichev V.N., Lind A.B. and Morozov I.K.

TITLE: A Presumatic Device for the Inspection and Sorting of the Housings of Live Centres (Pnevmaticheskiy pribor dlya kontrolya i scrtirovki korpusov vrashchayushchikhsya

tsentrov)

PERIODICAL: Stanki I Instrument, 1958, Nr 9, pp 27-28 (USSR)

ABSTRACT: A pneumatic device is described, developed by the Office for Interchangeability of the Standards, Measures and Measuring Instruments Committee (Byuro Vzaimozamenyayemosti komiteta standartov, mer i izmeritel'nykh priborov) under the designation BV-780 in order to inspect the fitting dimensions of the bousings of live centres for lathes. Each of the two inspected hole diameters is sorted within the allowable limits into four dimensional groups, thus creating 16 groups. The maximum value of the mean dia-meter datermines the group. The diameter and the deviation from the cylindrical form are measured by two pairs of nozzles arranged at right angles. The distance between Card 1/2 nozzles is about 55% of the length of the bore. Fig 2

shows the pneumatic circuit. The air is filtered and

A Pneumatic Device for the Inspection and Scrting of the Housings

stabilised, and then proceeds to the distributor containing the intake nozzles with a diameter so chosen that the measuring pressure fed to the pneumatic plug is half the working pressure. The pneumatic plug is a two-step cylindrical plug and inspects simultaneously two fitting diameters and the shape deviations (ovality and conicity). It is connected to an 8 contact differential mercury transmitter operating by the counter-pressure method. In one of the transmitter chambers a constant pressure is maintained. The other chamber has its pressure varied depending on the outflow from the pneumatic plug. Calibration is carried out with the help of a master ecomponent. There are 3 figures

Card 2/2

AUTHORS: Kolomiyets, B. T., Larichev, V. N. 55-28-5, 3/30 TITLE: Investigation of the Photoelectric Properties of Semiconductors of the Group PbS by Means of the Condenser Method (Issledovaniye fotoelektrisheskikh sveysin poluprovodnikov gruppy PbS kondensatornym merodom) PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 5: pp. 921-924 (USSR) ABSTRACT: As is known, lead-sulfide, -selenide and -telluride exhibit a strong photosensitivity in the infrared range only, if they are in shape of small polycrystalline layers, which were specially treated (activated) in exygen or in air at temperatures of from 300 - 500°C. According to the activation conditions, the photosensitivity can change by the hundred- or thousand-fold. In order to understand the nature of the photoconductivity of such activated layers; it is of interest to investigate the non-activated substances. This, however, is connected with great experimental difficulties. The authors applied in their experiments Card 1/4 the condenser method for the investigation of the internal

Investigation of the Photoelectric Properties of Semiconductors of the Group PbS by Means of the Condenser Method

57--28--5--1/36

photoeffect in semiconductors (References 1  $\cdots$  4). The results obtained on the basis of the examinations are as follows: The photo e. m. f. which was determined in lead. -sulfide, -selenide and -telluride by means of the condenser method, and the photoconductivity in the activated layers of these semiconductors are of a completely different type and are caused by two different processes. According to data in publications it can be assumed, that the width of the forbidden zone equals 0,37, 0,25 and 0,3 eV at room temperature, corresponding to PbS, PbSe and PbTe. These values correspond to the activation energy; which was computed according to the long-wave limit of photoconductivity. If, however, the activation energy is computed according to the red limit of the spectral distribution of the photo e. m. f., values are obtained exceeding by from 5.8 times the width of the forbidden zone. Contrary to the photoconductivity the photoeffect exhibiting such a spectral distribution cannot be explained by spatial processes.

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Investigation of the Photoelectric Properties of Semiconductors of the Group PbS by Means of the Condenser Method

57-28-5-1/36

Just as much the great time constant of the photo e. m. f. (up to 10-2 sec) cannot correspond to the mean life of the light carriers in the volume, nor to the period of diffusion equilibrium. In more pure monocrystals of PbSe and PbTe the mean life of the carriers, which are not in equilibrium, does not exceed 10-7. The assumption seems to be most probable, that the hydrogen atoms adsorbed at the surface represent very deep superficial level wells for the electrons. Therefore the photoeffect is caused by a liberation of electrons from these wells by the action of visible light. This assumption is also proved by the fact that the magnitude, the sign and the shape of the spectral distribution of the photo e. m. f. is markedly dependent upon the influence of the atmospheric oxygen. From this assumption it also proceeds, that the sign of the photo e. m. f. in the general case does not determine the sign of the photocurrent. The results of this work cannot be regarded as final. Further investigations are necessary.

Card 3/4

Investigation of the Photoelectric Properties of Semiconductors of the Group PbS by Means of the

57-28-5-1/36

There are 2 figures, 1 table and 6 references, 5 of which

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR, Leningrad (Physico-technical Institute, AS USSR, Leningrad)

SUBMITTED: June 26, 1957

1. Semiconductors--Photoconductivity

Card 4/4

CIA-RDP86-00513R000928630008-5" APPROVED FOR RELEASE: 08/31/2001

AUTHORS:

Kolomiyets, B. T., Larichev, V. N.

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57-28-6-33/34

TITLE:

On the Problem of the Mechanism of Conductivity and Photoconductivity in Polycrystalline Layers of Semiconductors of the PbS Group (K voprosu o mekhanizme provodimosti i fotoprovodimosti v polikristallicheskikh sloyakh poluprovodnikov gruppy

PERIODICAL:

Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 6, pp. 1358 - 1362 (USSR)

ABSTRACT:

In the present paper some experimental results obtained by the investigation of the influence exercised by oxygen upon the electric and photoelectric properties of polycrystalline layers of PbS, PbSe and PbTe are described. On the basis of the work carried out the following conclusions may be drawn: The nonlinearity of the volt-ampère characteristics of the photosensitive samples can be looked upon as proof of the fact that non--ohmic transition resistances exist in the most active layers, and that they play an important part in the mechanism of the conductivity and photoconductivity of the layers. For such samples

Card 1/3

the barrier theory of p-n-p transitions is applicable. It was

On the Problem of the Mechanism of Conductivity and 57-28-6-33/34 Photoconductivity in Polycrystalline Layers of Semiconductors of the PbS Group

worked out by Slater (Reference 7) and Petritz (Reference 8) with respect to the layers of PbS. In photoresistances of PbSe and in particular of PbTe the p-n-p transitions are of secondary importance. The oxygen, which is introduced into the layers at room temperature, is adsorbed at the edges of the microcrystals. The nonlinearity of the volt-ampère characteristics of such samples do not prove, in the authors' opinion, that there is no negative surface charge, but solely that there are no potential barriers on the edges of the microcrystals. Apparently the influence exercised by the opposite boundary of the microcrystals (Reference 9) makes itself felt. It follows herefrom that the barriers of the Schottky type do not exercise any considerable influence upon the conductivity and photoconductivity of the polycrystalline layers of semiconductors of the PbS group and that the theory developed by Smith and Gibson (Reference 1 and 6) is not applicable in this case. The surface states occuring as a result of exygen adsorption apparently manifest themselves by the existence of the photoeffect (with a maximum of spectral distribution in the visible part with a high degree of inertia),

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On the Problem of the Mechanism of Conductivity and 57-28-6-33/34 Photoconductivity in Polycrystalline Layers of Semiconductors of the PbS Group

> which is observed when measuring the photoelectromotive force by the condenser method (Reference 10). There are 3 figures and 10 references, 2 of which are Soviet.

SUBMITTED:

July 22, 1957

1. Semiconducting films—Conductivity 2. Semiconducting films—Photoconductivity 3. Semiconducting films—Electron transitions 4. Oxygen—Electrical effects 5. Lead alloys—Properties

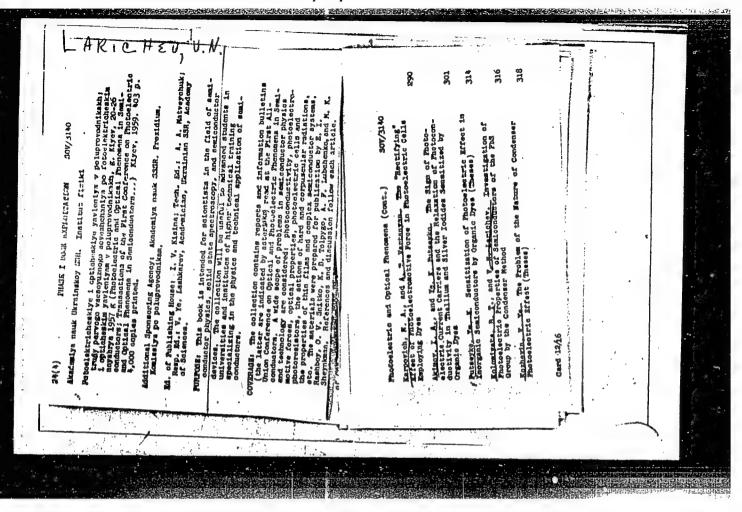
Card 3/3

LARICHEV, V.N.; LIND, A.B.; MOROZOV, I.K.

Presumatic instruments used for checking and sorting running-center bodies. Stan. i instr. 29 no. 8:27-28 Ag '58. (MIRA 11:8) (Ragineering instruments) (Lather-Testing)

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Zolotarev, V. F., Larichev, V. N.

p-n Junctions in Photosensitive PbS Films 2

TITLE:

Fizika tverdogo tela, 1960, Vol. 2, No. 8, pp. 1741-1750

TEXT: The aim of the authors was to investigate the volt-ampere characteristics of PbS films and their temperature dependence, and to demonstrate the existence of p-n junctions. At present, there are two groups of theories for photoconductivity. One of the theories assumes that, on illumination, carriers are released where oxygen plays an important role as electron trap. The second theory is based on the idea that the photosensitive film consists of a series of p-n junctions. The minority carriers, liberated by light, diffuse to the junction and lower the potential barrier between p- and n-type regions, thus increasing the photocurrent. In order to find out the actual mechanism, an experiment suggested in Ref. 5 is used as the criterion. If potential barriers exist in the film, volt-ampere characteristics must be nonlinear.

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p-n Junctions in Photosensitive PbS Films

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Therefore, the authors investigated the volt-ampere characteristics of PbS films prepared in different ways. The electrical circuit of the arrangement is shown in Fig. 1. Typical characteristics (taken in light and darkness) are shown in Fig. 2. The form of the characteristics was found to be independent of the method of preparation of the film and to depend on the manner of activation. Some samples showed a photo-emf that is directly related to the non-linearity of the characteristic. Chemically prepared films of PbS showed linear characteristics for low temperature activation in vacuo (Fig. 4). Fig. 5 shows lnd (d - the conductivity) as function of 1/T for chemically prepared films for high temperature activation in air, taken in dark and in light of two intensities. The results are discussed in detail. Experiments proved that on high temperature activation in air PbS layers showed p-n-p junctions. Films, that were activated at low temperature or in vacuum, showed no potential barrier. The p-n junctions have shunts whose conductivity is independent of temperature and exposure of the sample. The magnitude of the shunt differs from film to film and also from junction to junction in the same film; the photo-emf is a consequence of the latter. The

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p-n Junctions in Photosensitive PbS Films

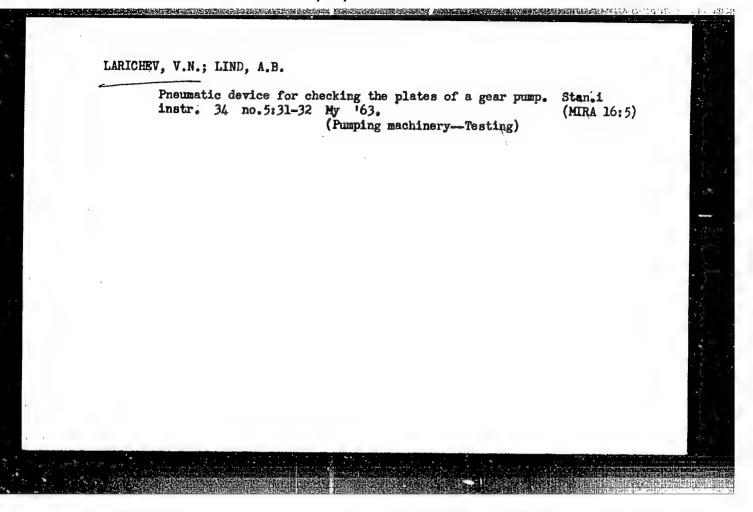
82991 S/181/60/002/008/010/045 B006/B070

surface impurity conductivity of an oxide film; or chains of free lead atoms can act as shunt. Three possible reactions, from which free lead may arise on high temperature activation, are given. The  $0^{-1}$  levels are traps for the photo electrons in p-type region; free lead atoms are traps for the photo holes in n-type region. The photoconductivity  $\Delta c/\sigma$  depends mainly on the trap concentration and only slightly on the magnitude of the German.

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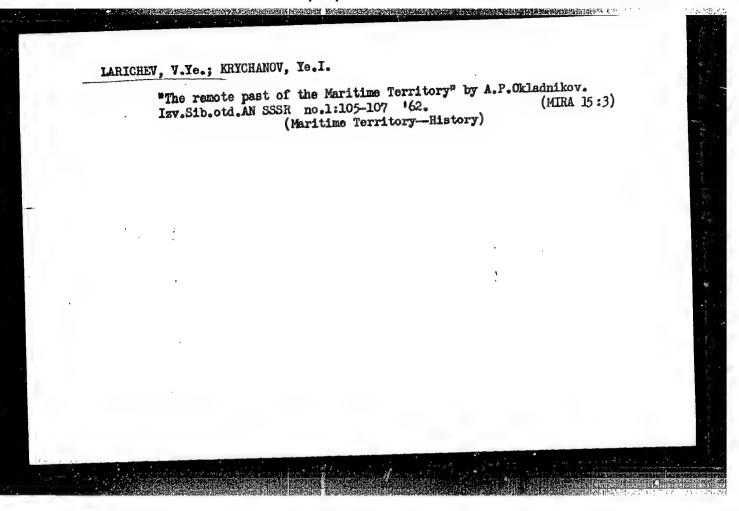
February 28, 1959 (initially) and February 29, 1960 (after revision)

Card 3/3



EWI(1)/EWI(m) AT/JD/JG ACC NR: AP6009693 SOURCE CODE: UR/0181/66/008/003/0958/0959 38 AUTHOR: Iarichev, V. N.; Illarinova, V. A. B ORG: Kazan' State University im. V. I. Ul'yanov-Lenin (Kazanskiy gosudarstvenny universitet) TITIE: Characteristics of induced photo emf in mercury iodide SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 958-959 TOPIC TAGS: mercury compound, photo emf. light absorption, photosensitivity ABSTRACT: The authors present preliminary results of the investigation of induced photo emf in mercury iodide, consisting in the fact that prior exposure of the semiconductor to light in the region of the intrinsic absorption in the impurity region causes a sharp increase in the photosensitivity. This is connected with the transfer of the carriers from the adhesion levels into one of the allowed bands. The induced photo emf was investigated by a capacitor method. The use of two monochromators made it possible to illuminate the samples simultaneously with two beams of different wavelengths. The samples were in the form of thin polycrystalline layers deposited on a glass substrate, and also in the form of powder and thin layers obtained by precipitation. A plot of the spectrum shows that illumination with 438 nm wavelength (region of intrinsic absorption) increases the sensitivity in the impurity region. The sign of the photo emf was determined by using a flash lamp, and was found to be negative in the intrinsic-absorption region, and positive in the impurity region. Cord 1/2

In the transit	ion region (590	600 nm) t	he suppleme	ntary illum	ination chan	ged the	
sign of the ph	oto emf. It 18	concluded	char one ea	roda pripa	t milses the	authors	
also investiga	rriers prior to ted the frequen	cy characte	ristics of	the photo	mf and found	that it	
can be describ	ed by a plot of	the luncti	on (I + lui ont 1111min	etion on th	e frequency	character-	
istic of the	hoto emf calls	for further	study. Or	ig. art. h	s: 1 figure	and 1	
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GINDINA, M.M.; KOGANOVA, G.V.; LARICHEVA, Q.M.; MELKOVA, A.Ye.; POLYAKOVA,
M.G.; SKOBEIKHMA, I.F.; IKOMHKOV, V.V., prof. otvetstvennyy red.
ROSHGHIMA, L., red.izd-vs; LEBEDBV, A., tekhn.red.

[State Bank of the U.S.S.R.; a brief account on the fortieth
anniversary of the October Revolution] Gosudarstvennyi bank SSSR;
kratkii ocherk k sorokaletiiu Oktiebria. Moskva, Gosfinizdat,
kratkii ocherk k sorokaletiiu Oktiebria. Moskva, Gosfinizdat,
(MIRA 11:2)

1. Gosudarstvennyy bank, Moscow.

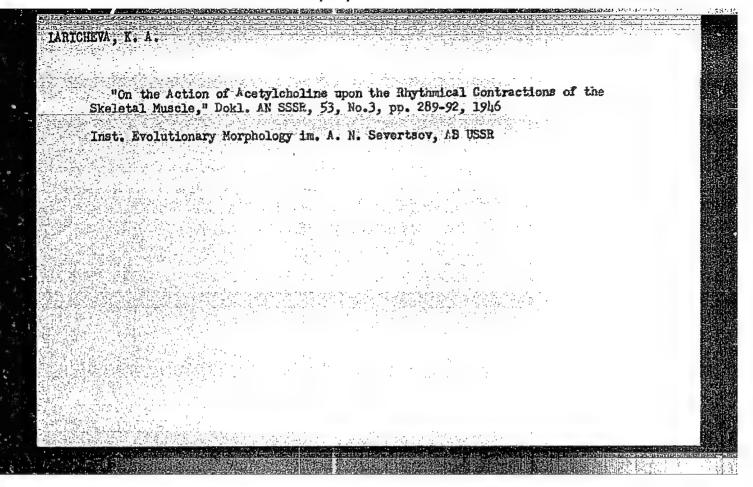
(Banks and banking)

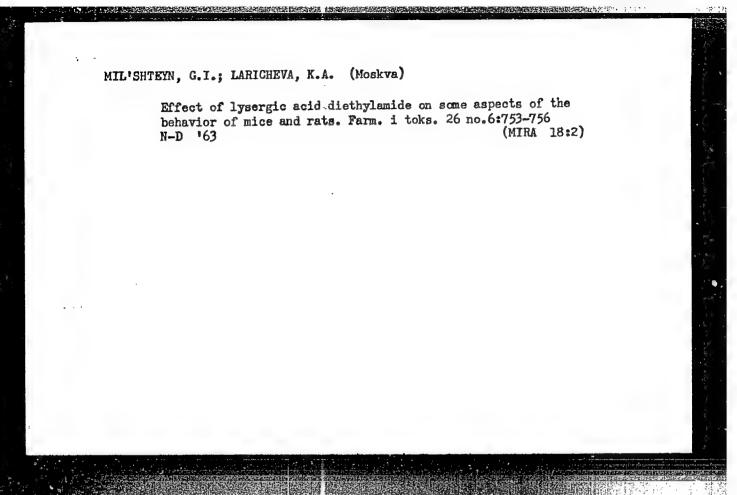
LARICHEVA, I. I., Cand Med Sci -- "Treatment of chronic inflammatory diseases of female derivations organs by the mudiontophoresis of the opiscoral region under hon-resort

conditions." Kiev, 1961. (Kiev Order of Labor Red Banner

Med Inst im Acad A. A. Bogomol ets) (KL, 8-61, 262)

- 483 -



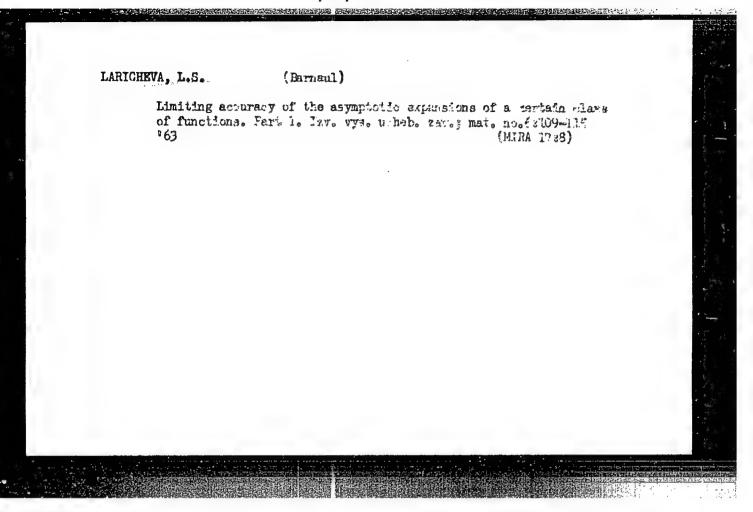


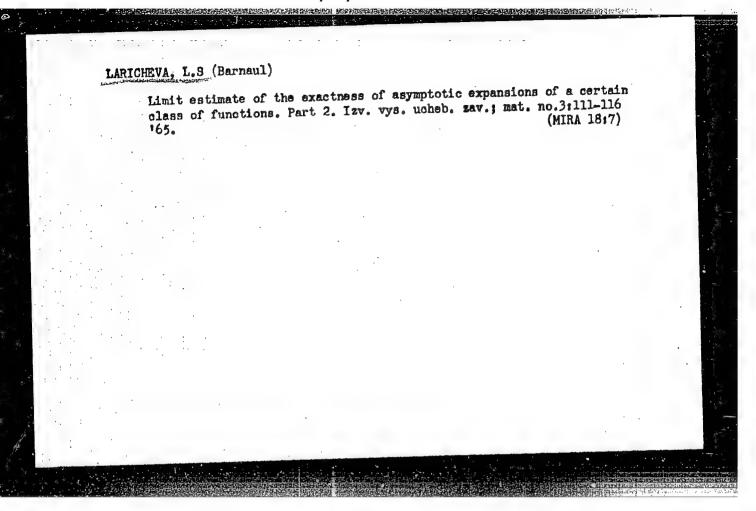
BABAYANTS, R.S.; BLAGOVESHCHENSKAYA, V.V.; VERGILESOVA, O.S.; VISSONOV, Yu.V.; VYALOVA, N.A.; GLAZUNOV, I.S.; DRUTMAN, R.D.: KLEMPARSKAYA, N.N.; KOTOVA, E.S.; KURSHAKOV, N.A., prof.; LARICHEVA, L.P.; LYSKOVA, M.N.; MALYSHEVA, M.S.; PETUSHKOV, V.N.; RYNKOVA, V.N.; SOKOLOVA, I.I.; STUDENIKINA, L.A.; CHUSOVA, V.N.; SHESTIKHINA, O.N.; SHULYATIKOVA, A.Ya.; SHTUKKENBERG, Yu.M.; BARANOVA, Ye.F., red.

[Acute radiation lesion in man] Ostraia radiatsionnaia travma u cheloveka. Moskva, Meditsina, 1965. 313 p.

(MIRA 18:9)

1. Chlen-korrespondent AMN SSSR (for Kurshakov).





1. LARICHEVA, M. D.

2. USSR (600)

4. Rye

7. Studying fertility of rye seeds produced by wheat. Agrobiologiia No. 6 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

- 1. LARICHEVA, M. D.
- 2. USSR (600)
- 4. Hybridization, Vegetable
- 7. Productivity of hybrids as a function of conditions under which parental forms were raised. Sel.isem. 20 no. 1 1953.

9. Monthly List of Russian Accessions, Library of Congress, \_\_\_\_\_\_1953, Uncl.

KRASNIKOV, B.V., doktor sel'skokhozyaystvennykh nauk; LARICHEVA, M.D., kand.sel'skokhozyaystvennykh nauk

Late fall sowing as a method for developing resistance to flower-stalk formation in sugar beets grown for feed purposes in the non-Chernozem zone. Agrobiologiia no.6:791-795 N-D t61. (MIRA 15:2)

1. Vsesoyuznyy nauchno-issledovateliskiy institut kormov imeni
V.R. Viliyamsa, st. Lugovaya, Moskovskaya oblasti.
(Sugar beets)

SHEEALINA, M.A., kand.sel'skokhozyaystvennykh nauk; LARICHEVA, M.D., kand.sel'skokhozyaystvennykh nauk

"Meets" by V.T. Krasochkin. Reviewed by M. A. Shebalina and M. D.
Laricheva. Zemledelie 23 no.11:92-93 N '61. (MIRA 14:12)

(Beets) (Krasochkin, V. T.)

LARICHEVA, M.D., kand.sel'skokhozyaystvennykh nauk; SHNEYDER, Yu.I., kand.bilogicheskikh nauk; KASHMANOVA, O.I.

Late fall sowing as a method for developing a comparatively disease resistant variety of sugar beets. Agrobiologiia no.3: (MIRA 15:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kormov,
Moskovskaya oblast'.

(MOSCOW PROVINCE-SUGAR BEETS-DISEASE AND PEST RESISTANCE)

LARICHEVA, M.D., kand. sel'skokhoz. nauk

Growth characteristics of the sugar beet in the non-Chernozem zone.
Agrobiologiia no.41594-598 Jl-Ag '64. (MIRA 17:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kormov, Moskovskaya oblast'.

SPOTARENKO, S.S.; LARICHEVA, M.G.

Some results of mass use of gamma globulin in the prophylaxis of infectious hepatitis in Moscow Province. Vop.med.virus. no.9:419-424 \*64. (MIRA 18:4)

1. Iz Moskovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii.

LARICHEVA, M.K., kand. sel'skokhoz. nauk; SEHEYDER, Yu.I., kand. biolog. nauk

Preservation of turnip and sugar beet roots. Zashch.rast. ot vred. i bol. 9 no.10:24-25 164 (MIRA 18:1)

1. Vsesoyuznyy institut kormov, Institut kartofelinogo khozyaystva.

VOSTOKOVA, Ye.A.; SHAVYRINA, A.V.; LARICHEVA, S.G.; VIKTOROV, S.V., doktor geogr. nauk, nauchnyy red.; FEDOROVA, L.N., red.izd-va; IYERUSALIMSKAYA, Ye.S., tekhn.

[Handbook on indicator plants for ground waters and soils in southern deserts of the U.S.S.R.] Spravochnik po rastenilamindikatoram gruntovykh vod i pochvo-gruntov dlia iuzhnykh pustyn' SSSR. Pod red. S.V.Viktorova. Moskva, Gosgeoltekhnizdat, 1962. 123 p. plates.

(Russia, Southern—Indicator plants)

(Russia, Southern—Desert flora)

507/40-22-4-15/26 16(1) Laricheva, V.V. (Moscow) The Non-Linear Damping of Eigen Oscillations in Systems of AUTHOR: Arbitrary Order (Nelineynoye gasheniye sobstvennykh kolebaniy TITLE: sistem proizvol'nogo poryadka) Prikladnaya matematika i mekhanika, 1958, Vol 22, Nr 4, pp 536 - 538 (USSR) PERIODICAL: The damping of eigen oscillations of a system of second order ABSTRACT: of the form  $x + \omega^2 x = 6$ is based on the fact that the damping function 5 as a function of the oscillation speed causes a dissipation of energy. In the present case the dissipation of energy is to take place by non-linear dampers which satisfy the equation:  $\delta = \omega^2 k^2 x$ where the magnitude k is to satisfy the following conditions  $k^2 = 0$  for xx > 0 $0 < k^2 < 1$  for xx < 0Card 1/2

The Non-Linear Damping of Eigen Oscillations in Systems of Arbitrary Order

SOV/40-22-4-15/26

Under the given conditions the energy of the system is diminished by a certain value during every oscillation, i.e. the system is suppressed. For the given equation of second order the problem can be solved and the damping time can be

The same method is applied to systems of n-th order of the

 $\sum_{s=1}^{n} (\beta_{s1} x_{s} + \omega_{s1} x_{s}) = \delta_{1} \qquad (1 = 1, ..., n)$ form : (13)

The calculation of the initial conditions occurring in the solution set up can be principally carried out according to the same method as it is usual for linear systems. It is indicated that the calculation of the damping is still practicable, if the magnitudes of damping & do not depend on the oscillation velocity, but only on the coordinate and on the acceleration.

SUBMITTED:

December 22, 1957

Card 2/2

5/892/62/000/001/022/022 B102/B106

Larichev, A. V., Laricheva, V. V.

AUTHORS:

Inversion of the matrix of the sensitivity function of a

scintillation spectrometer TITLE:

Inzhenerno-fizicheskiy institut. Voprosy dozimetrii SOURCE:

i zashchity ot izlucheniy, no. 1, 1962, 150-155

TEXT: The corrections for Compton distribution, photoefficiency, collimator solid angle, and low-energy y-ray absorption, necessary in transition from the apparatus pulse-height spectrum to the true y-ray spectrum measured with a single-crystal scintillation spectrometer, have already been calculated by Yu. A. Kazanskiy (Pribory i tekhnika eksperimenta, no.4, 32, 1959). He obtained the correction formula by means of the original matrix of the Compton contributions. Since this method is cumbersome and not free from errors, the authors here use the inverse complete matrices of the sensitivity function (of, collection: Pribory i metody analiza izlucheniy, no.3, Gosatomizdat 1961) for calculating the correction for a spectrometer with an 80-80 mm HaI(71)

Card 1/3

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8/892/62/000/001/022/022 B102/B186

Inversion of the matrix of the

crystal and a collimator 300 mm in length and 20 mm in diameter. The crystal and a collimator 300 mm in length and 20 mm in diameter. The relation obtained for the normalization of the Compton distribution for one incident photon equals that given by J. Hubell (Rav.Sci.Instrum., 29, one incident photon equals that given by J. Hubell (Rav.Sci.Instrum., 29, one incident photon equals that given by J. Hubell (Rav.Sci.Instrum., 29, one incident photon equals that given by If the multiplication of the normalization photons (factor  $\Omega_{eff}/\Omega_{o}$ ) due to transmission effects and their reduction photons (factor  $\Omega_{eff}/\Omega_{o}$ ) due to absorption is taken into account, the in number (factor  $\Omega_{eff}/\Omega_{o}$ ) due to absorption is taken into account, the inverse of the latter relation serves for normalizing therefore  $P_k^* = \mathcal{E}'' - \mathcal{E}'' P_{ph}$ . The latter relation serves for normalizing each element of the Compton distribution of the original matrix. As an example, the original and inverse total matrices are given for  $P_k = 600$  kex example, the original and inverse total matrices are given for  $P_k = 600$  kex example, the original and inverse obtained by E.Rawson and D.Cormak. The results agree closely with those obtained by E.Rawson and D.Cormak. (Nucleonics, 16, no. 10, 92, 1958) and J.Kockum (Nucl.Instrum. 4, no. 3, 171). (Nucleonics, 16, no. 10, 92, 1958) and J.Kockum (Nucl.Instrum. 4, no. 3, 171). (Nucleonics, 16, no. 10, 92, 1958) and J.Kockum (Nucl.Instrum. 4, no. 3, 171). (Nucleonics, 16, no. 10, 92, 1958) and J.Kockum (Nucl.Instrum. 4, no. 3, 171). (Nucleonics, 16, no. 10, 92, 1958) and J.Kockum (Nucl.Instrum. 4, no. 3, 171). (Nucleonics, 16, no. 10, 92, 1958) and J.Kockum (Nucl.Instrum. 4, no. 3, 171). (Nucleonics, 16, no. 10, 92, 1958) and J.Kockum (Nucl.Instrum. 4, no. 3, 171). (Nucleonics, 16, no. 10, 92, 1958) and J.Kockum (Nucl.Instrum. 4, no. 3, 171). (Nucleonics, 16, no. 10, 92, 1958) and J.Kockum (Nucl.Instrum. 4, no. 3, 171). (Nucleonics, 16, no. 10, 92, 1958) and J.Kockum (Nucl.Instrum. 4, no.

Card 2/3

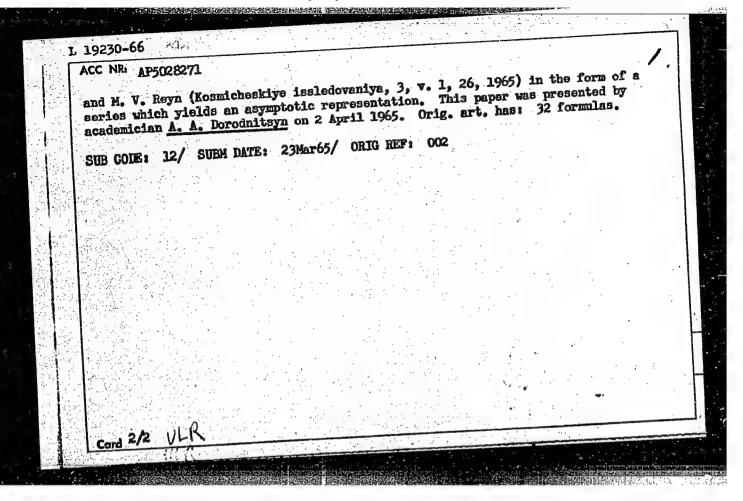
MARKOWED FOR RELEASE '08/31 F2003

LARICHEVA, V.V; REYN, M.V. (Moscow)

"Asymptotic solutions based on the non-Kepler undisturbed motion".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

EWT(d) IJP(c) UR/0020/65/165/002/0289/0292 SOURCE CODE: ACC NR: AP5028271 Laricheva, V. V. AUTHOR: ORG: none TITIE: Efficient transformation and asymptotics of a class of nonlinear differential equations SOURCE: AN SSSR. Doklady, v. 165, no. 2, 1965, 289-292 TOPIC TAGS: differential equation, nonlinear differential equation 16,44,55  $dx/dt = -y + \varepsilon \Pi_1(p, x, y), \quad dy/dt = x + \varepsilon \Pi_2(p, x, y),$ ABSTRACT: The author treats (1) $dp/dt = \varepsilon\Pi_3(p, x, y) \quad . \bullet$ She shows that the interval of suitability of the averaged equations can be significantly broadened in comparison to the theorem of N. N. Bogolyubov and Yu. A. Mitropol'skiy (Asimptoticheskiye metody v teorii nelineynykh kolebaniy, M., 1963)  $d\xi/dt = eX_0(\xi) \quad \left(X_0(\xi) = \frac{1}{T} \int_{-T}^{\xi} X(t,\xi) dt\right),$ on averaging system depending on the initial conditions. She further describes a means for approximate determination of o, Q, generalizing the corresponding result of V. V. Laricheva



L 26116-65 EWT(1)/FS(v)-2/EWP(m)/EWG(v)/T Po-L/Pq-L/Pe-5/Pg-L GW S/0293/65/003/001/0027/00L1

ACCESSION NR: AP5005L36

AUTHOR: Laricheva, V. V.; Reyn, M. V.

TITIE: Asymptotics of celestial mechanics equations which is suitable for a wide range of variation in eccentricity

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 1, 1965, 27-41

TOPIC TAGS: celestial mechanics, perturbed motion, quasi Hamiltonian equation, slowly varying osculating elements, motion equation transformation

ABSTRACT: Transformation of the equations of motion of a mass point in a central gravitational field under small perturbations to equations in slowly varying variables is proposed. Slowly varying variables in equations of motion correspond to bles is proposed. Slowly varying variables in equations of perturbed motion in osculating non-perturbed non-Keplerian motion. The equations of perturbed motion in osculating non-perturbed to a "quasi-Hamiltonian" form which, when the parameter  $\varepsilon$  characterizing the value of the perturbation is equal to zero, becomes the Hamiltonian form form of equations of non-perturbed Keplerian motion. The quasi-Hamiltonian form of the equations makes it possible to single out effectively the principal part of the perturbation in order to select the non-Keplerian non-perturbed motion from which the particular solution (spiral trajectory) of the equations of the perturbed

Card 1/2

L 26116-65

ACCESSION NR: AP5005436

motion can be obtained. Conditions for selecting slowly varying variables are presented. It is shown that these variables are more effective than Keplerian osculating elements for solving the problem of accelerating and decclerating the mass point in the gravitational field under small perturbations, using the first approximation of the Krylov-Bogolyubov method for averaging the equations of motion. It is proved that the solutions of averaged equations in various osculating elements are identical. The first approximation (of the Krylov-Bogolyubov method) to the solution and its relative error are analyzed for problems with a wide range of solution and its relative error are analyzed for problems with a wide range of variation of orbital elements. The good accuracy of the proposed approach for obvariation of orbital elements of perturbed motion is verified by means of examples taining solutions of equations. Orig. art. has: 1 figure and 53 formulas. [LK]

ASSOCIATION: none

27Nov63

ENCL: 00

SUB CODE: AA

NO REF 80V: 002

SUBMITTED:

OTHER: 001

ATD PRESS: 3186

Card 2/2

EWP(m)/EWP(c)/EWT(1)/T/EWA(d) IJP(c) GW UR/0293/65/003/003/0359/0367 ACCESSION NR: AP5015663 521.401.4:521.6 AUTHORS: Laricheva, V. V.; Reyn, M. V. TITLE: A method for constructing solutions to the equations of plane perturbed motion in celestial mechanics SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 3, 1965, 359-367 TOPIC TAGS: satellite orbit; elliptic orbit, logarithmic spiral, perturbation theory, perturbed satellite motion, spiral trajectory, magnetic field, gravitational field, celestial mechanics ABSTRACT: The equations of motion for a particle in a force field in the presence of perturbations are given by 2eaup2 dp 22aup3 where u is a polar angle, p, &ar, &au - dimensionless focal parameter, radial and transverse perturbation acceleration components, respectively, and  $z = e \cos(u - \omega)$ ,  $y = e \sin(u - \omega)$ . A stable motion for this equation is given by a Cord 1/3

#### L 20852-66

ACCESSION NR: AP5015663

spiral trajectory

$$x = \varepsilon f_1(p, \varepsilon), \quad y = \varepsilon f_2(p, \varepsilon),$$

which leads to

$$p = F_1(x, \varepsilon), \quad p = F_2(y, \varepsilon), \quad \frac{dx}{dp} = \varepsilon f_1'(p, \varepsilon), \quad \frac{dy}{dp} = \varepsilon f_2'(p, \varepsilon).$$

When substituted above, this gives 
$$\frac{2\varepsilon a_u p^3}{(1+x)^3} = -y + \frac{2\varepsilon a_u p^2}{(1+x)^2}, \quad \frac{\varepsilon f_2}{(1+x)^3} = x + \frac{\varepsilon a_u p^2 y}{(1+x)^3} + \frac{\varepsilon a_r p^2}{(1+x)^2}$$

Using these results, a set of special cases is analyzed. The first is a motion

The analysis shows that under a small constant radial attraction no acceleration is possible for the particle with a satellite orbit. Next, the effect of the earth's magnetic field on the electrically charged satellite is investigated for eo < 1. This leads to the results

stic field on the electrons in the electrons are successful to the results 
$$\frac{A_n \sin(u - \varphi_n)}{A_n \cos(u - \varphi_n) + u^2} = u - \text{Arctg} \frac{A_n \sin(u - \varphi_n)}{A_n \cos(u - \varphi_n) + u^2}$$

**Card** 2/3

L 20852-66

ACCESSION NR: AP5015663

Finally, the case is considered where the small perturbations are proportional to the gravitational pull described by the equations

 $\frac{dp}{du} = \frac{2\varepsilon p\tilde{a}_u}{1+x}, \quad \frac{dx}{du} = -y + 2\varepsilon \tilde{a}_u, \quad \frac{dy}{du} = x + \frac{\varepsilon \tilde{a}_u y}{1+x} + \varepsilon \tilde{a}_r$ 

The particular solution for these equations is shown to be a logarithmic spiral which leads to a non-Keplerian, unperturbed motion

існо. В [4] при помощи вычислительног

Orig. art. has: 38 equations and 2 figures.

ASSOCIATION: none

SUBMITTED: 27Nov63

ENCL: 00

SUB CODE: SV, ME

NO REF SOV: OOL

OTHER: 004

Card 3/3

FAYBISOVICH, L.I.; VARAKIN, P.I.; LARICHKIN, M.S.; MEDOVAR, B.I.; LATASH, Yu.V.; MAKSIMOV, I.P.; TYURIN, V.I.; BUSHMELEV, V.M.

Effect of electric slag remelting on the quality of rotor open-hearth steel. Met. 1 gornorud. prom. no.5:18-21 S-0 '64. (MIRA 18:7)

I. 35339-66 EWT(m)/EWP(w)/T/EWP(t)/ETT/EWP(k) IJP(c), JD  ACC NR. AP6011826 (N) SOURCE CODE: UR/0383/66/000/002/0035/0039	
AUTHOR: Faybisovich, L. I.; Varakin, N. I.; Larichkin, M. S.; Medovar, B. I.; Author: Faybisovich, L. I.; Varakin, N. I.; Larichkin, M. S.; Medovar, B. I.; Akulinin, M. A. Latash, Yu. V.; Yemel'yanenko, Yu. G.; Maksimov, I. P.; Koval', S. I.; Akulinin, M. A.	
ORG: none TITLE: Quality of heavy forgings of 36KhNlMFAR electroslag rotor steel	
SOURCE: Metallurgicheskaya i gornorudnaya promyshlennost', no. 2, 1966, 35-39	8.7° 8.3
TOPIC TAGS: steel forging, steel, nonmetallic inclusion, brittleness, temper brittleness	
ABSTRACT: The study deals with the effect of electroslag melting on the quality of vacuum-degassed and nondegassed open-hearth steel. Forgings of 36KhN1MFAR steel, vacuum-degassed and nondegassed open-hearth steel. Forgings of 36KhN1MFAR steel, obtained from electroslag ingots weighing 13 tons, have a compact structure and a obtained from electroslag ingots weighing 13 tons, have a compact structure and a obtained from electroslag ingots weighing 13 tons, have a compact structure and a obtained from electroslag ingots weighing 13 tons, have a compact structure and a considerably lower than in similar forgings from metal made the clusions in them is considerably lower than in similar forgings from metal made the conventional way. The mechanical properties of the remelt metal are characterized conventional way. The mechanical properties of the remelt metal are characterized by high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longibly high stable values in the length and cross section of the forging both in longible values in the length and cross section of the forging both in longible values i	
SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003 UDC: 669-13:658.562	

DOEROVOL'SKIY, D.M.; LYAL'KIN, M.A. (g. Petrovka Gor'kovskoy oblasti);
BOBERSKIY, A.A. (st.Kok-Su Alma-Atinskoy oblasti, Kazakhskoy
SSR); MIKHAYLOV, A.V.; LARICHKIN, M.Ye.; GERSHMAN, V.I.;
SMOLOV, Ye.I. (Sevastopol')

Notes on textbooks. Fiz.v shkole 22 no.6:87-89 N-D '62.

(MIRA 16:2)

1. 3-ya vos'miletnyaya shkola, g.Serdol'sk, Penzenskoy oblasti
(for Dobrovol'skiy). 2. Srednyaya shkola, s.Undino-Posel'ye
Chitinskoy oblasti (for Mikhaylov, A.V.). 3. Shemshinskaya
srednyaya shkola Tatarskoy ASSR (for Larichkin). 4. 56-ya
vechernyaya shkola Moskva (for Gershman).

(Physics-Textbooks)

LARIKOV, A.F

MURASHEV, V.A., prof., doktor tekhn.nauk; MIRONOV, S.A., prof., doktor tekhn.nauk; ALEKSANDROVSKIY, S.V., kand.tekhn.nauk; TAL, K.E., kand.tekhn.nauk; MULIN, N.M., kand.tekhn.nauk; DMITRIYEV, S.A., kand.tekhn.nauk; MULIN, N.M., kand.tekhn.nauk; SIGALOV, E.Ye., kand.tekhn.nauk; NEMIROVSKIY, MEMIROVSKIY, MEMIROVSKIY, S.M., turov, B.A., kand.tekhn.nauk; BRAUDE, Z.I., inzh.; KRYLOV, S.M., kand.tekhn.nauk; FOKIN, K.F., doktor tekhn.nauk; GUSEV, N.M., prof., doktor tekhn.nauk; YAKOVLEV, A.I., inzh.; KORENEV, B.G., prof., doktor tekhn.nauk; DERESHKEVICH, Yu.V., inzh.; MOSKVIN, prof., doktor tekhn.nauk; DERESHKEVICH, Yu.V., inzh.; MOSKVIN, prof., doktor tekhn.nauk; MAKARICHEV, V.V., kand.tekhn.nauk; V.M.; LUR'YE, I.L., inzh.; MAKARICHEV, V.V., kand.tekhn.nauk; SHEVCHENKO, V.A., inzh.; VASIL'YEV, B.F., inzh.; KOSTYUKOVSKIY, N.G., kand.tekhn.nauk; MAGARIK, I.L., inzh.; IL'YASHEVSKIY, Ya.A., inzh.; LARIKOV, A.F., inzh.; STULOV, T.T., inzh.; THUSOV, L.P., inzh.; LYUDKOVSKIY, I.G., kend.tekhn.nauk; POPOV, A.N., kand.tekhn.nauk; Nauk; VINOGRADOV, N.M., inzh.; USHAKOV, N.A., kand.tekhn.nauk; SVERILOV, P.M., inzh.; TER-OVANESOV, G.S., inzh.; GLADKOV, B.N., kand.tekhn.nauk; KOSTOCHKINA, G.V., arkh.; KUREK, N.M.; OSTROVSKIY, kand.tekhn.nauk; PEREL'SHTKYN, Z.M., inzh.; BUKSHTEYN, D.I., inzh.; M.V., kand.tekhn.nauk; PEREL'SHTKYN, Z.M., inzh.; BUKSHTEYN, D.I., inzh.; M.V., kand.tekhn.nauk; PEREL'SHTKYN, Z.M., inzh.; BUKSHTEYN, D.I., inzh.;

MURASHEV, V.A .-- (continued) Card 2.

MIKHAYLOV, V.G., kand.tekhn.nauk; SIGALOV, E.Ye., kend.tekhn.nauk; GVOZDEV, A.A., prof., retsenzent; MIKHAYLOV, V.V., prof., retsenzent; PASTERNAK, P.L., prof., retsenzent; SHUBIN, K.A., inzh., retsenzent; TEMKIN, L.Ye., inzh., nauchnyy red.; KOTIK, B.A., red. izd-va; GORYACHEVA, T.V., red.izd-va; MEDVEDEV, L.Ya., tekhn.red.

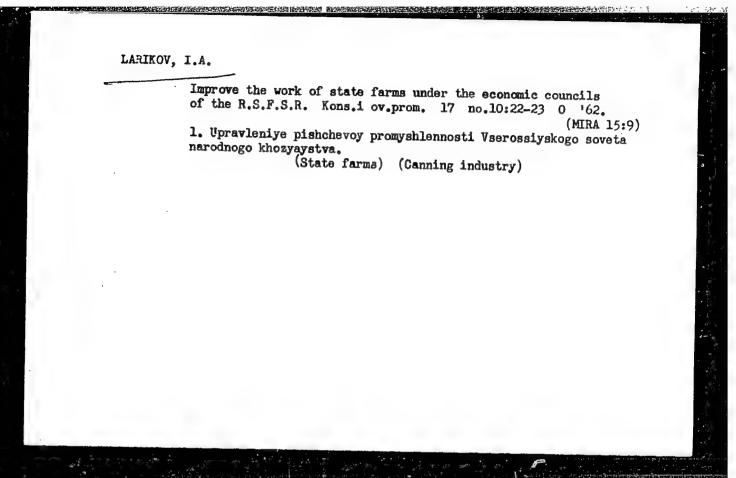
[Handbook for designers] Spravochnik proektirovshchika. Pod obshchei red. V.I.Murasheva. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam. Vol.5. [Precast reinforced concrete construction elements] Sbornye zhelezobetonnye konstruktsii. 1959. 603 p. (MIRA 12:12)

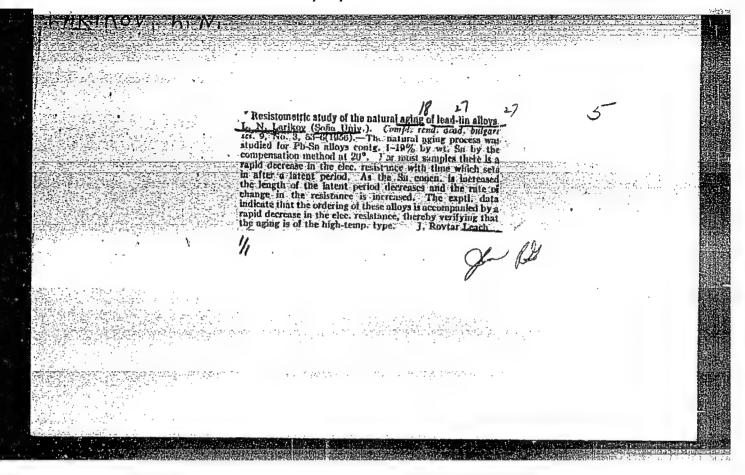
1. Akademiya stroitel'stva i arkhitektury SSSR. Nauchno-issledo-vatel'skiy institut betona i zhelezobetona, Perovo. 2. Deystvitel'-nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Murashev, Gvozdev, Mikhaylov, V. V., Pasternak, Shubin). 3. Chlen-korresp. Akademii stroitel'stva i arkhitektury SSSR (for Mironov, Gusev, Moskvin, Kurek).

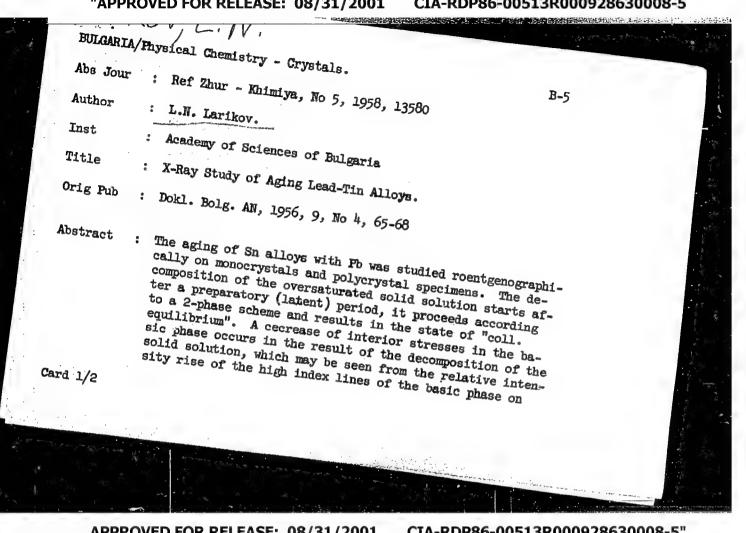
(Precast concrete construction).

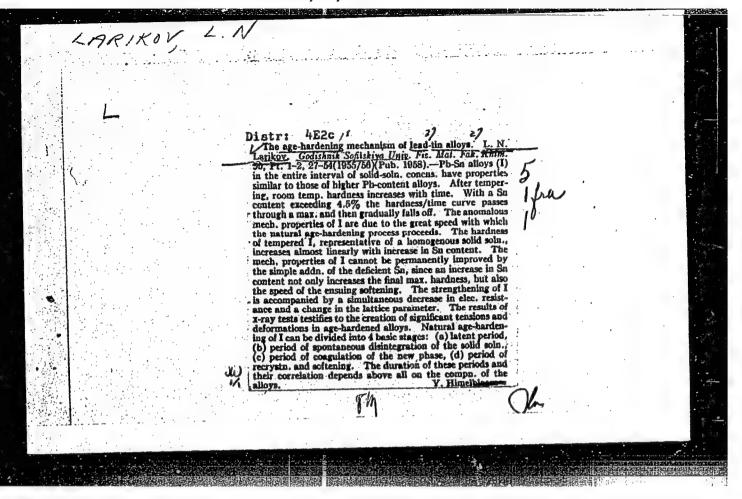
## LARIKOV, I.A.

Improve the methods of growing vegetable seeds of the canning type. Kons.i ov. prom. 16 no.2:32-34 F '61. (MIRA 14:4)









SOV/137-58-7-15658

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 249 (USSR)

AUTHOR: Larikov, L. N.

Effect of Alloying Elements on the Hardening of Lead Alloys (Vliyaniye legiruyushchikh elementov na uprochneniye svintso-

vykh splavov)

PERIODICAL: Sb. nauchn. rabot In-ta metallofiz. AN UkrSSR, 1957, Nr 8, pp 128-144

ABSTRACT:

TITLE:

A review of extant works on the study of hardening of Pb-alloys. The effect of alloying elements on the formation and properties of Pb-base solid solutions is analyzed. The conclusion is made that at temperatures below the melting point and at relatively great strain rates the relative hardening of solid solutions is practically independent of the nature of the solvent metal but depends only on the character of the modification of the parameter of its crystalline lattice by the alloying element (in accordance with the law determined by A. P. Gulyayev and Ye. G. Trusova, ZhTF, Nr 20, p 66, 1950). At relatively high temperatures and low strain rates the action of the alloying element on the forces of interatomic bonds in

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SOV/137-58-7-15658

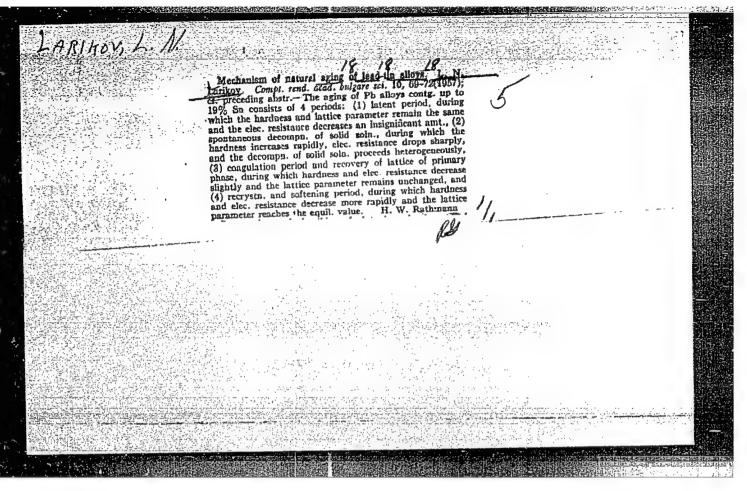
Effect of Alloying Elements on the Hardening of Lead Alloys

the solid solution is manifested more strongly. Furthermore, in the present work, intermediary phases in Pb alloys which can strengthen alloys either in the role of primary components of the heterogeneous structure or as a secondary segregate separating upon the aging of supersaturated solid solutions are analyzed. The problem of hardening of some Pb-base alloys upon natural aging is discussed. Bibliography: 36 references.

Ya. L.

1. Lead alloys--Hardening 2. Alloys--Metallurgical effects

Card 2/2



LARIKOV, L. N. and POLOTSKIY, I. G.

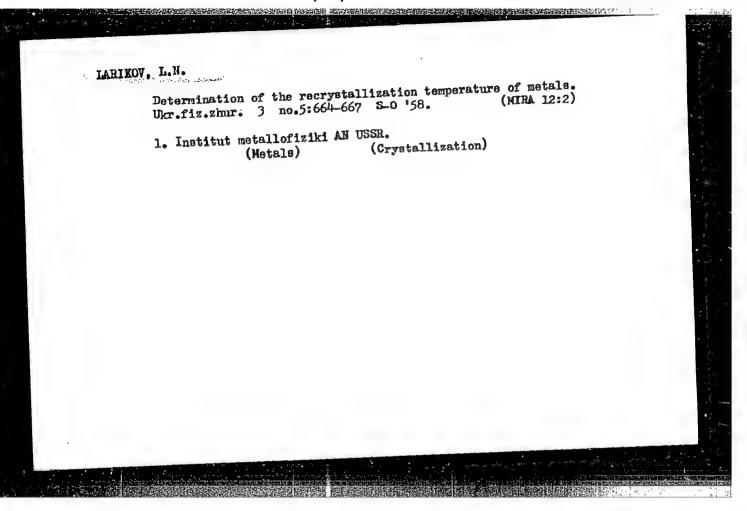
"On the Question of the Influence of Ultrasonics on Phase Transitions in Solid Metals and  ${\bf Z}$  Alloys."

paper presented at the 4th All-Union Conf. on Acoustics, Moscow, 26 May - 2 Jun 58.

LARIKOV, L.N.

Aging of lead alloys [with summary in English]. Ukr. fiz. zhur. 3
no.3:397-407 My-Je '56.

1. Institut metallofiziki AN USSR.
(Lead alloys)



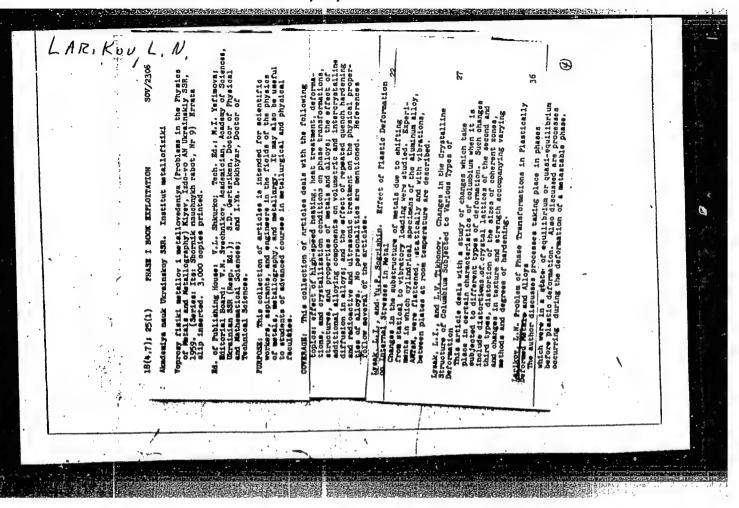
LARIKOV, L.H.

Mobility of atons in metals near the recrystallization temperature. Ukr.fiz.zhur. 3 no.5:668-672 8-0 '58. (MIRA 12:2)

1. Institut metallofiziki AM USSR. (Molecular dynamics)

#### "APPROVED FOR RELEASE: 08/31/2001

#### CIA-RDP86-00513R000928630008-5



# "APPROVED FOR RELEASE: 08/31/2001

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#### CIA-RDP86-00513R000928630008-5 "APPROVED FOR RELEASE: 08/31/2001

18(7)

SOV/21-59-1-11/26

AUTHORS:

Zasimchuk, Ye.E. and Larikov, L.N.

TITLE:

The Linear Rate of the Growth of Recrystallization Centers in Heavily Deformed Nickel and Iron. (Lineynaya skorost'rosta tsentrov rekristallizatsii v sil'-

no deformirovannykh nikele i zheleze)

PERIODICAL:

Dopovidi Akademii nauk Ukrains'koi RSR, 1959, Nr 1,

pp 42-45 (USSR)

ABSTRACT:

It has been demonstrated in the work of L.N. Larikov [1] that the time T until the appearance of the first recrystallized grains (size L) in heavily-deformed metals is basically determined by the linear speed (G) of the growth of the recrystallization centers, and can be expressed by the equation . The authors of this paper have established the way of

determining the temperature-dependence of G by measuring 7 and L in several temperatures, in the here-

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The Linear Rate of the Growth of Recrystallization Centers in Heavily Deformed Nickel and Iron.

SOV/21-59-1-11/26

described radiometallographic experiments with iron and nickel deformed by compression to 80%. The data includes the pre-exponential factor G and the activation energy Q<sub>G</sub> of the process for electrolytic nickel (99.99%) forged at 1000°C, the same nickel remelted in a vacuum, armco iron (99.88%) and electrolytic iron (99.97%) refined by annealing in H<sub>2</sub> current in 1200°C and subsequently remelted and soaked in a vacuum for 12 hours. The results show that slight impurities lead to a perceptible change of G and a considerable increase of Q<sub>G</sub>. In the case of very pure, vacuum-remelted nickel, the Q<sub>G</sub> value approaches the activation energy of boundary diffusion. There are 2 graphs, 1 table, and 5 references, 3 of which are Soviet, 1 German

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The Linear Rate of the Growth of Recrystallization Centers in Heavily Deformed Nickel and Iron.

and 1 English.

ASSOCIATION: Institut metallofiziki AN UkrSSR (Institute of the Physics of Metals of the AS UkrSSR)

August 11, 1958, By G.V. Kurdyumov, Academician. PRESENTED:

Card 3/3

LARIKOV LN

s/058760/000/02/16/023

24.1800 Translation from: Referativnyy zhurnal, Fizika, 1960, No. 2, pp. 137-138, # 3534

AUTHORS: Larikov, L. N., Polotskiy, I. G.

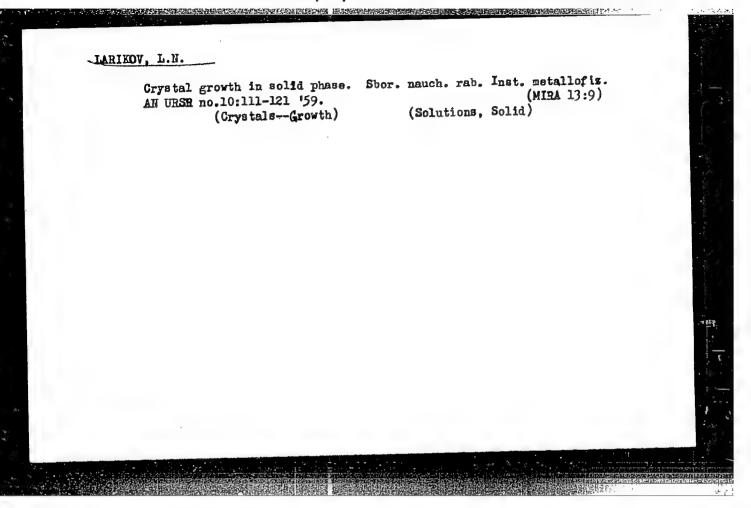
TITLE: The Problem of the Effect of Ultrasound on the Phase Transformation

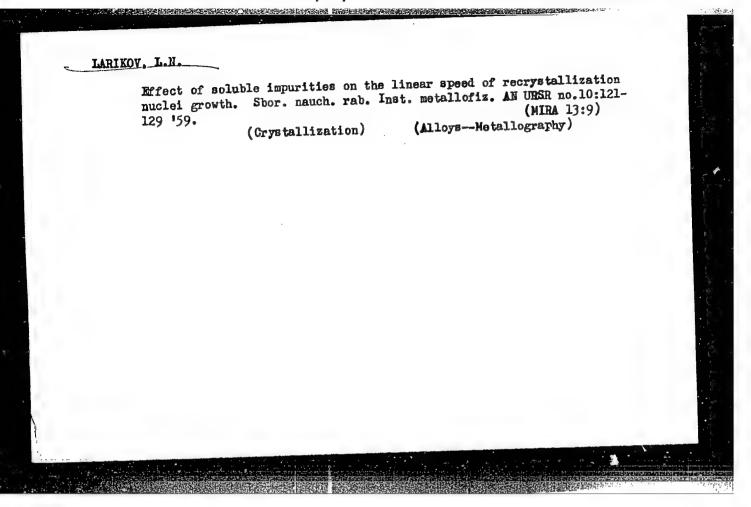
in Solid Metals and Alloys

PERIODICAL: Sb. nauchn. rabot In-ta metallofiz. AN UkrSSR, 1959, No. 9, pp. 50-53

TEXT: It was established that ultrasonic irradiation (750 kc, ~10 w/cm²) produces no noticeable effect on the kinetics of natural aging of a lead-tin alloy and the allotropic transformation of \( \gamma - Co \rightarrow \ell - Cc. \) The ultrasonic irradiation of alloy samples of the Duraluminum type led to a considerable acceleration of the aging process. It was shown that under the conditions of irradiation pointed out above, the effect of acceleration of the phase transformations is observed only in those cases when the kinetics of the process is sensitive to small temperature changes, such as take place in the case of an aluminum alloy. It must be assumed, therefore, that the effects which are observed in similar cases are caused by a temperature increase due to the absorption of ultrasonic energy by the samples and its transformation into heat. This does not exclude a possible effect of ultrasound on phase transformations in metals and alloys by deformation of the samples during the action of oscillations with great amplitude.

Authors' conclusions





SOV/48-23-5-16/35

18(7) AUTHORS: Zasimchuk, Ye. E., Kurdyumov, G. V., Larikov, L. N.

TITLE:

The Influence of Alloy Elements on the Kinetics of Recrystallization of the Alloys With Nickel Basis (Vliyaniye legiruyushchikh elementov na kinetiku rekristallizatsii splavov

na nikelevoy osnove)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959,

Vol 23, Nr 5, pp 615-619 (USSR)

ABSTRACT:

The introduction to the present paper contains a table accurately describing the analyses of 27 alloys. Each of these alloys was converted to the monophase condition by thermal treatment and subsequently deformed at room temperature up to 80%. The samples were then annealed from 5 minutes to 10 hours in the temperature range of 280-900°C, and the state of recrystallization was investigated. The time was measured after which the primary center of recrystallization attained the magnitude of 10-2 cm at a given temperature. The results obtained from various measurements of the alloys in question are summarized in cour diagrams; the logarithm of time T, elapsing until the appearance and growing of the first recrystallization centers up to a magnitude of 10-3cm,

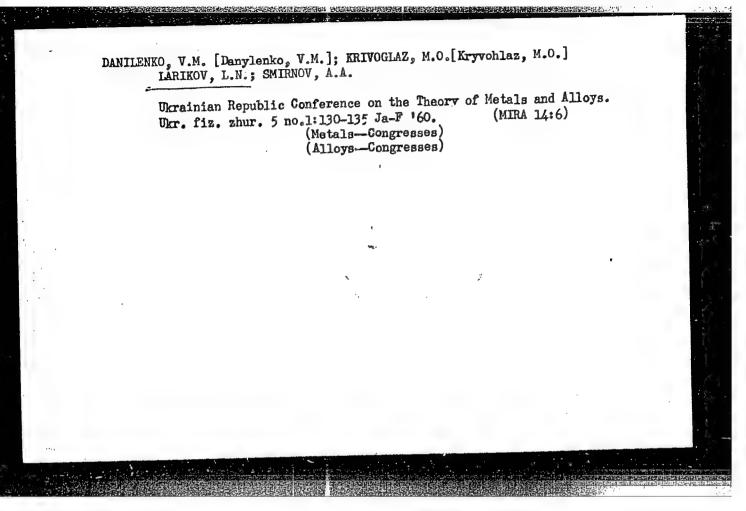
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SOV/48-23-5-16/31

The Influence of Alloy Elements on the Kinetics of Recrystallization of the Alloys With Nickel Basis

is plotted on the ordinate, and the value T-1.103 is plotted on the abscissa, with T equal ing the absolute annealing temperature: It holds T = AeRT, the measuring values of each individual alloy lie on to straight line, each alloy possessing its own characteriatics. The energy activating recrystallization is determined from the velocity at which recrystallization takes place. These values are summarized in table 2 and are indicated in hoal/g-atom. Two further diagrams (Figs 5, 6) show the values on the activating energy, of the diffusion coefficient and of the modulus of elasticity of nickel alloys with chromium and molybdenum. Finally, conclusions are drawn from the results concerning the mobility of the atoms in the metal lattice, the concentration ratios in the boundaries of the growing recrystallization centers, and concerning the dependence of the surface tension on concentration. There are 6 figures, 2 tables, and 11 references, 9 of which are Soviet.

ASSOCIATION: Institut metallofiziki Akademii nauk USSR (Institute of Metal Physics of the Academy of Sciences, UkrSSR) Card 2/2



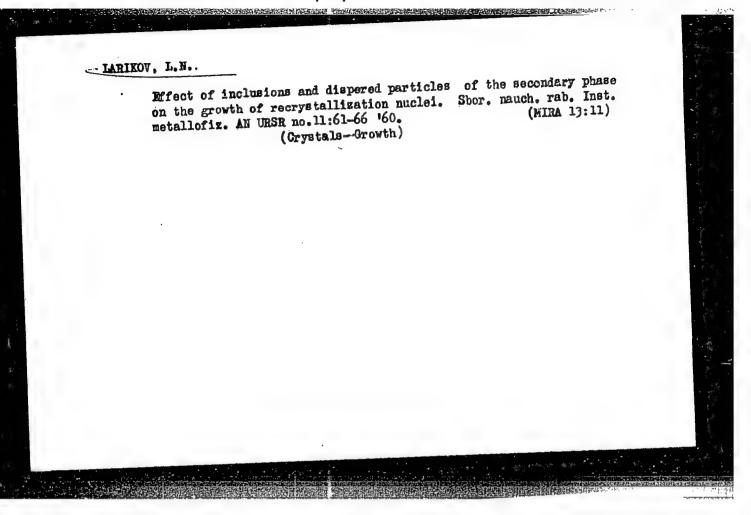
GRIDNEY, V.N., otv.red.; LARIKOV, L.N., kand.khim.nauk, red.; POLOTSKIY, I.G., doktor khim.nauk, red.; FAYNERMAN, I.D., doktor tekhn.nauk, red.; LEPKIY, S.D., red.izd-va; RAKHLINA, N.P., tekhn.red.

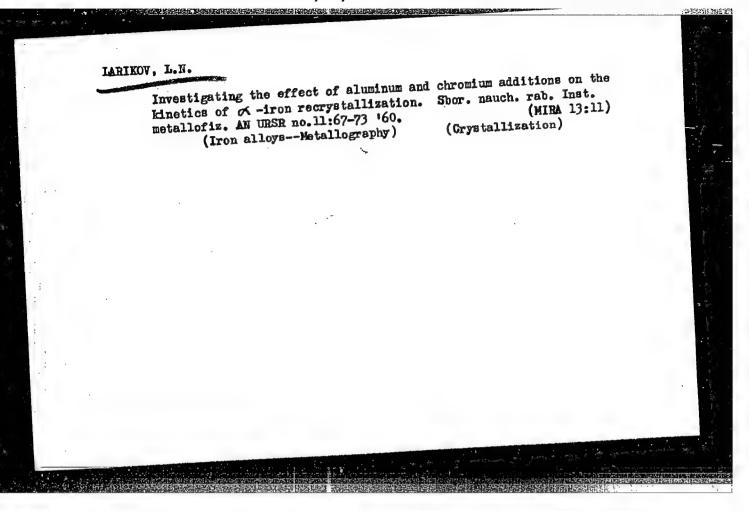
[Use of ultrasonic waves for the investigation of properties, quality control and the working of metals and alloys] Primenenis ultrazvukovykh kolebanii dlia issledovaniia svoistv, kontrolia ultrazvukovykh kolebanii dlia issledovaniia svoistv, kontrolia kachestva i obrabotki metallov i splavov. Kiev, 1960. 106 p. (MIRA 13:6)

1. Akademiya nauk USSR, Kiyev. Institut metallofiziki. 2. Chlen-korrespondent AN USSR (for Gridnev).

(Metals--Testing) (Metalwork--Testing)

(Ultrasonic testing)





GERTSRIKEN, S.D. [Hertsriken, S.D.]; LARIKOV, L.N.; SLYUSAR, B.F.

[Sliusar, B.P.]

Determining the latent energy of deformation in copper, copper-zinc alloys and in Armco from by the calorimetric method. Ukr. fiz. zhur. 5 no. 5:672-670 S-0 '60.

1. Institut fiziki metallov AN USSR.

(Deformation (Mechanics)) (Copper)

(Copper-zinc alloys) (Iron)

69706 s/126/60/009/03/033/033 E193/E483 Gertsriken, S.D., Larikov, L.N. and Novikov, N.N. Volumetric and Structural Changes Taking Place in 18.7500 Cold-Worked Electrolytic and Cast Nickel During Heating AUTHORS: PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 3, TITLE : It has been found, during earlier investigations pp 478-480 (USSR) (Ref 1,2) of nickel, deformed in torsion, that changes occurring in this metal during subsequent heating take place in two stages. During the first stage (relaxation), ABSTRACT: the decrease in the dimensions of the specimens is accompanied by liberation of a part of the latent energy of deformation and an increase in the electrical conductivity, hardness of the metal remaining practically constant. During the second stage (recrystallization), the volumetric changes are accompanied by the liberation of the main part of the latent energy of deformation, further increase in the electrical conductivity and a decrease in hardness. However, it has not been found possible to determine the transition from one stage to the other from the dimensional changes. Card 1/6

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Volumetric and Structural Changes Taking Place in Cold-Worked Electrolytic and Cast Nickel During Heating

To find an explanation of this effect, it was necessary to correlate the volumetric changes with the structural changes taking place in the same specimens, subjected to various modes of deformation. Another interesting problem was to find out whether the effect of small gaseous additions on the temperature range of volumetric changes in deformed nickel is similar to that on the rate of growth of recrystallization centres, as revealed by X-ray analysis (Ref 3). It was for this reason that the present authors studied the volumetric and structural changes that, on heating, take place in various grades of plastically deformed nickel. Electrolytic nickel, containing 99.99% Ni, was used as the starting material. A portion of this material was melted in vacuum in order to remove the gaseous impurities (mainly hydrogen). The annealed specimens were deformed at room temperature either by drawing to 0.5 mm diameter or by twisting wires of the same diameter. The volumetric changes of the specimens during heating (at a rate of 50°C/h) were

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Volumetric and Structural Changes Taking Place in Cold-Worked Electrolytic and Cast Nickel During Heating

measured with the aid of a device described elsewhere (Ref 4). At the same time, the variation of the X-ray diffraction patterns produced by specimens placed in the same apparatus and heated to the same temperatures at the same heating rates, was studied. The growth of the first recrystallization centres to dimensions of the order of 10-3 cm was revealed by appearance of spots on the backgound of Debye lines; this background disappeared when the process of recrystallization was completed. The experimental results are reproduced in Fig 1 and 2. Fig 1 shows the change of volume ( $\Delta V/V \times 10^{\frac{1}{2}}$ ) in nickel deformed in torsion, plotted against the temperature, curves 1 and 2 relating to electrolytic nickel and nickel melted in vacuum respectively; the degree of deformation is given by where n is number of turns, d the diameter the length of the specimen; the magnitude of and for the electrolytic nickel and for the vacuummelted material was 0.3 and 0.25 respectively.

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Volumetric and Structural Changes Taking Place in Cold-Worked Electrolytic and Cast Nickel During Heating

results for nickel, deformed by drawing to  $\epsilon \approx 96\%$ , results for nicker, deformed by drawing to z = 70%, are reproduced in Fig 2, where  $\Delta V/V \times 10^4$  (continuous curves, left-hand scale), and the width of the  $\beta(331)$ lines (broken curves, right-hand scale) are plotted against temperature (°C); curves 1, 2 relate to electrolytic and vacuum-melted metal respectively; arrows pointing upwards indicate the appearance of spots on the X-ray pattern, arrows pointing downwards indicate disappearance of the diffuse background. It will be seen that the volumetric changes taking place during relaxation and recrystallization stages are more clearly separated in specimens deformed by drawing and containing gaseous impurities. "Spreading" of these effects in a wide temperature interval in the case of specimens deformed in torsion is obviously associated with the non-uniform character of the relaxation processes taking place in non-uniformly deformed material. Small deflections on the volume versus temperature curves reflect the processes of relaxation and recrystallization

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Volumetric and Structural Changes Taking Place in Cold-Worked Electrolytic and Cast Nickel During Heating

taking place in the outer, most heavily deformed layer of the torsion specimens; it was also these layers that produced the X-ray diffraction pattern. The transition from the relaxation to recrystallization stage in vacuummelted nickel specimens is not shown distinctly on the volume versus temperature curves either; this is due to the fact that the temperature ranges of relaxation and recrystallization are very close. The relaxation and recrystallization stages can be easily distinguished in specimens of electrolytic nickel containing small proportions of gaseous impurities. Although the volumetric changes corresponding to the relaxation stage terminate at the same temperature as in pure nickel, they take place within narrower temperature range. Similar narrowing of the temperature range of volumetric changes is observed also during recrystallization; this case, however, the effect is displaced towards the region of higher temperature in full agreement with the X-ray data. It should be pointed out also that,

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Volumetric and Structural Changes Taking Place in Cold-Worked Electrolytic and Cast Nickel During Heating

according to the X-ray data, the second stage of the volumetric changes taking place during heating of deformed nickel appears to be a result of the formation and growth of the recrystallization centres; this is indicated by the fact that the temperature range of volumetric changes coincides with the temperature range of the recrystallization process. There are 2 figures and 6 references, 3 of which are Soviet, 2 English and 1 German.

ASSOCIATION: Institut metallofiziki AN USSR

(Institute of Physics of Metals AS UkrSSR)

Kiyevskiy gosudarstvennyy universitet im T.G. Shevchenko

(Kiyev State University imeni T.G. Shevchenko)

SUBMITTED:

July 6, 1959

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s/053/60/070/01/006/007 B006/B017 18(0), 24(0) Larikov, L. N.,

Krivoglaz, M. A., Danilenko, V. M., AUTHORS:

Smirnov, A. A.

Congress of the Ukrainian Republic on the Theory of Metals TITLE:

and Alloys

Uspekhi fizicheskikh nauk, 1960, Vol 70, Nr 1, pp 191-198 PERIODICAL:

(USSR)

This Conference which took place from 1 - 5 June, 1959 in Kiyev was attended by scientists from the Ukraine and from other Republics of the Union; 70 lectures were delivered ABSTRACT: and discussed in 2 plenary meetings in 2 sections (electron theory and molecular-kinetic theory of metals and alloys).

The problems and prospects of metal theory in the light of the fulfillment of the Seven-year Plan and the phenomenological theory of ferromagnetism were summarized in 2 lectures by I. M. Lifshits and S. V. Vonsovskiy. The following lectures were also delivered: V. P. Silin on the investigation of the influence of the interaction between the conduction electrons on the metal properties by the side of the interaction between the conduction electrons

on the metal properties by the aid of the theory by L. D. Lan-

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